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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/987,964

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Satoshi Nakao

107156-00084

7918

7590

02/08/2005

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EXAMINER

AGHDAM, FRESHTEH N

ART UNIT

PAPER NUMBER

2631

DATE MAILED: 02/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/987,964	NAKAO ET AL.	
	Examiner	Art Unit	
	Freshteh N. Aghdam	2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2001.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art, and further in view of Schmutz et al (US Pub. 2001/0048727).

As to claim 1, the admitted prior art teaches an OFDM (Orthogonal Frequency Division Multiplex) for receiving and demodulating the OFDM signal comprising of a demodulator (Fig. 8; Block 5) in order to demodulate the level adjusted signal outputted from the Automatic Gain Adjuster 4 (Fig. 8; Pg. 3, Lines 19-25). The admitted prior art is silent about using a controller to control the automatic gain adjuster within the periods of guard interval periods wherein the guard interval periods are detected by a detector. Schmutz et al, in the same field of endeavor, teach an automatic gain adjuster, which adjusts the gain during a guard interval period (Fig. 4; Pg. 4, Par. 30). Furthermore, one of ordinary skill in the art would clearly recognize that for the automatic gain controller to adjust the gain during a guard interval is required to first detect the guard interval periods. Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Schmutz et al with the admitted prior art in order to avoid large

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changes in signal level between the guard period and the time slot carrying information (Pg. 4; Par. 30).

As to claim 2, the admitted prior art teaches the controller 11, in which controls the arithmetic unit 10 to issue an instruction for level adjustment (Fig. 8; Pg. 2, Lines 25-27).

As to claim 3, Schmutz et al teach a controller that measures a plurality of time slots until a predetermined number is reached (Fig. 4; Pg. 4, Par. 30). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Schmutz et al with the admitted prior art in order to allow for a determination of a relatively accurate predictive gain adjustment factor (Pg. 4, Par. 30).

As to claim 4, the admitted prior art teaches the signal level detector 9, which detects the level change of an OFDM signal and an automatic gain controller in order to adjust the level of the OFDM signal responsive to the signal level detected by the detector (Fig. 8; Pg. 2, Lines 25-27; Pg. 3, Line 1). The admitted prior art doesn't teach a controller for determining an actual signal receiving condition in accordance with the result of actual receiving signal determination. Schmutz et al, in the same field of endeavor, teach a controller that detects the currently received signal and based on the condition of the received signal an appropriate gain adjustment factor is applied to the signal (Fig. 4; Pg. 4, Par. 31). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Schmutz et al with the admitted prior art in

order to appropriately adjust the gain factors exclusively to the currently received signals (Pg. 4, Par. 31).

As to claim 5, Schmutz et al teach a controller (i.e. a method of gain adjustment factors) in which the controller averages amplitudes of the at least one previously received signal arriving during the at least one previously received signal and then an appropriate gain adjustment factor is determined (Fig. 4; Pg. 4, Par. 31). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Schmutz et al with the admitted prior art in order to do the gain adjustment factor in variety of ways (Pg. 4, Par. 31).

As to claim 6, Schmutz et al disclose a gain adjustment factor method by determining the actual received signal condition in each predetermined period (Fig. 4; Pg. 4, Par. 31). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Schmutz et al with the admitted prior art in order to appropriately adjust the gain factors exclusively to the currently received signals (Pg. 4, Par. 31).

As to claim 7, one of ordinary skill in the art would clearly recognize that the controller detects at least one of gain control period, level detection period, level control range for gain control and gain control amount.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Gupta et al (US Patent 6,731,627), Takebuchi et al (JP Patent 410,243,338), and Riordan (US Patent 5,184,349).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Freshteh N. Aghdam whose telephone number is (571) 272-6037. The examiner can normally be reached on Monday through Friday 9:00-5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Freshteh Aghdam

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January 31, 2005

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M. GJ-  
MOHAMMED GHAYOUR  
SUPERVISORY PATENT EXAMINER